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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,133	10/29/2003	Cheng-Liang Chang	252011-1250	5523
47390	7590	10/03/2005		
THOMAS, KAYDEN, HOSTEMEYER & RISLEY LLP 100 GALLERIA PARKWAY SUITE 1750 ATLANTA, GA 30339			EXAMINER THOMAS, LUCY M	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/696,133	<b>Applicant(s)</b> CHANG ET AL.	
	<b>Examiner</b> Lucy Thomas	<b>Art Unit</b> 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/28/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-18 and 36 is/are rejected.
- 7) ☒ Claim(s) 8-11, 1922, 32-35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: Recitation of "at lease one pushing element" on page 3, line 12 of Specification should be corrected to "at least one pushing element".

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 12-16, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kogan (US 5,885,428) in view of Sinclair (US 6,116,990). Regarding Claim 1, Kogan discloses an electrostatic chuck assembly 216 (Figure 2, Figure 3), comprising: base (unlabelled upper portion of 204 above 409) having a first and a second end surface; a ceramic element 404 disposed on the first end surface 205, 405; a pedestal 402 disposed on the ceramic element; a main body (lower portion of 204 below 409) disposed on the second end surface. Kogan teaches a through hole (see Figure 2) on the main body and a pushing element 210, but differs from that of Claim 1 since it is used for pushing the wafer. However, Sinclair discloses a chuck assembly, wherein screws or bolts 908 are threaded into the mating threaded holes 816 and are sequentially torqued so as to draw a gimbal shaft 810 into a press fit with a cavity 906 in

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the chuck (Figure 10, Column 15, lines 15-20). Sinclair further discloses a pattern of countersunk holes 818 provided on top of the gimbal shaft 810 to enable disassembly. Threaded jack holes 910 are aligned with the holes 818 to allow a threaded pushing element into each of the holes to provide a driving force to, after removal of bolts or screws 908, push the gimbal shaft 810 out of its press fit position within the cavity 906. Sinclair teaches that it was known in the art to use a threaded pushing element through a threaded hole to separate or disassembling two tightly fit structures without causing structural damage. Sinclair teaches that the pushing element disclosed in the invention is basically a screw with a screw head and threaded portion and retardant portions. Both Kogan and Sinclair teach wafer handling equipment in the solid state device manufacturing art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the chuck assembly of Kogan with a through hole and a pushing element as taught by Sinclair to push the ceramic element and pedestal from the base to disassemble the chuck assembly without causing structural damage to the chuck assembly, as taught by Sinclair.

Regarding Claim 2, Kogan discloses the second end surface of the base comprises at least one threaded hole and the main body comprises at least one fixing hole; the main body fixed onto the second surface of the base by fixing a bolt 412 into the fixing hole and the threaded hole (Figure 4, Column 4, lines 29-34). Kogan also fails to disclose the fixing hole as an elongated slot as recited in Claim 3, and as substantially rectangular as recited in Claim 4. However, it would have been obvious to those skilled in the art at the time the invention was made that the fixing hole may be

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elongated and substantially rectangular to allow use of a variety of screws and allow room for positioning and/or facilitate removal of screws, as opposed to a smaller circular hole.

Regarding Claim 5, Kogan fails to disclose a first threaded portion on the pushing element and a second threaded portion on the through hole of the main body. As noted above, Sinclair discloses a pushing element 908 which comprises a first threaded portion and a through hole 816 comprising a second threaded portion wherein the first threaded portion rotably engages the second threaded portion.

Claims 12-16 basically recites the elements of chuck assembly as recited in Claims 1-5 except that the elements are identified only as objects or devices, not with specifically an electrostatic chuck assembly, as in Claims 1-5. Therefore, please see the rejections above as the electrostatic chuck assembly also falls within the category of these objects and devices. Regarding Claim 36, the recited method steps would necessarily be performed as required by the electrostatic chuck assembly recited in Claim 1.

4. Claims 6-7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kogan (US 5,885,428) in view of Sinclair (US 6,116,990) and further in view of Gardner et al. (US 5,300,175). Neither Kogan or Sinclair teach providing a retardant layer on the pushing element, however, Gardner et al. teaches providing such a layer. It would have been obvious to those skilled in the art at the time the invention was made to form a first retardant portion adjacent the threaded portion and a first retardant portion on the hole of the ceramic element as the retardant material reduces

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friction in these areas of contact. Regarding Claim 7, Gardner et al. teaches that the first retardant portion is composed of Teflon. Teflon is a high strength plastic, which minimizes friction and stress and is also chemically inert. Claims 17 and 18 basically recites the details of the pushing element of chuck assembly as recited in Claims 6 and 7 except that the pushing element is identified as part of a disassembling device, not specifically an electrostatic chuck assembly, as in Claims 6-7. Therefore, please see the rejections above as the electrostatic chuck assembly also falls within the category of a disassembling device.

5. Claims 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kogan (US 5,885,428) in view of Sinclair (US 6,116,990) and further in view of Collins et al. (US 5,874,361). Claims 23-29 recites a high-density vapor deposition system, comprising an electrostatic chuck assembly and disassembling device with elements as disclosed in Claims 1-5 and 12-16. The electrostatic chuck assembly/disassembling device disclosed by Kogan is to be used in a process chamber of a semiconductor wafer processing system, and the one disclosed by Sinclair is to be used primarily in the polishing of semiconductor wafers. Collins et al. discloses an electrostatic chuck assembly used in chemical vapor deposition applications (Figure 1, Column 1, lines 34-40). The Collins reference is relied upon to show the application of electrostatic chuck assembly/disassembling device in a high-density plasma chemical vapor deposition system within a chamber (Column 5, lines 21-23) as taught by Collins, as processing of semiconductor wafers must be done in a clean environment to manufacture fully functional, reliable semiconductor devices.

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6. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kogan (US 5,885,428) in view of Sinclair (US 6,116,990) and Gardner et al. (US 5,300,175) and further in view of Collins et al. (US 5,874,361). Claims 30-31 recites a high-density vapor deposition system, comprising an electrostatic chuck assembly and disassembling device with elements as disclosed in Claims 6-7 and 17-18. The electrostatic chuck assembly/disassembling device disclosed by Kogan is to be used in a process chamber of a semiconductor wafer processing system, and the one disclosed by Sinclair is to be used primarily in the polishing of semiconductor wafers. Collins et al. discloses an electrostatic chuck assembly used in chemical vapor deposition applications (Figure 1, Column 1, lines 34-40). The Collins reference is relied upon to show the application of electrostatic chuck assembly/disassembling device in a high-density plasma chemical vapor deposition system within a chamber (Column 5, lines 21-23) as taught by Collins, as processing of semiconductor wafers must be done in a clean environment to manufacture fully functional, reliable semiconductor devices.

***Allowable Subject Matter***

6. Claims 8-11, 19-22, and 32-35 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims because the prior art does not suggest the electrostatic chuck assembly as claimed in Claim 6, wherein, the at least one pushing element further comprises a second retardant portion adjacent to the first retardant portion and the pedestal further comprises a second retardant hole adjacent to

first retardant hole, the second retardant portion penetrating the first retardant hole and engaged in the second retardant hole.


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT  
September 22, 2005

  
Phuong T. Vu  
Primary Examiner



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